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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/007,781	11/13/2001	Stacey Bolk	WIBL-P01-575	1826

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EXAMINER	
SITTON, JEHANNE SOUAYA	

ART UNIT	PAPER NUMBER
1634	

DATE MAILED: 09/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/007,781	BOLK ET AL.	
	Examiner	Art Unit	
	Jehanne S Sitton	1634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 July 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *19,21-29 and 31-38* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *19,21-25,27,29,31 and 33-38* is/are rejected.

7)☒ Claim(s) *26,28,32 and 34* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114 was filed in this application after appeal to the Board of Patent Appeals and Interferences, but prior to a decision on the appeal. Since this application is eligible for continued examination under 37 CFR 1.114 and the fee set forth in 37 CFR 1.17(e) has been timely paid, the appeal has been withdrawn pursuant to 37 CFR 1.114 and prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on 7/12/2004 has been entered. Currently, claims 19, 21-29, and 31-38 are pending. This action is Non-Final.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Objections

3. Claims 26, 28, 32, and 34 are objected to because they are improperly dependent on cancelled claims. The claims have not been further treated on the merits.

Withdrawn Rejections

4. The rejection of claims 29-34 under 35 USC 112/2nd para is withdrawn in view of the amendment to the claims (made in section 4 of the previous office action).

5. The rejections made in sections 7, 8, and 9 of the previous office action, under 35 USC 102(e) or 102(b) are withdrawn in view of the amendments to the claims.

New Grounds of Rejection

Claim Rejections - 35 USC § 112

6. Claims 21-24, and 35-38 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The claims broadly encompass nucleic acid molecules that hybridize to "a region which encompasses nucleotide position 3949', and sequences "comprising" sequences within SEQ ID NO: 1 including nucleotide 3949, complements of such, as well as microarrays comprising such sequences.

With regard to claims 21, 35, and the claims that depend therefrom, the recitation of "comprising more than 10 contiguous nucleotides" and "hybridization" language encompass mutants, variants, and homologs of SEQ ID NO: 1 with nucleic acid changes at different positions (as well any nucleic acid on either side of the 'more than 10 contiguous nucleotides from SEQ ID NO: 1) because the hybridization language and comprising language recited in the claims does not limit the claim to the complete complement of SEQ ID NO: 1. It is clear from the recitation in the claim that nucleic acids with mismatches, additions or deletions, would be

capable of hybridizing to SEQ ID NO: 1 "at a region which encompasses nucleotide position 3949". The recitation of allele specific oligonucleotide does not structurally limit the claim. Further, sequences that can hybridize (these sequences can tolerate mismatches) at a region within SEQ ID NO: 1 which encompasses nucleotide position 3949 does not require that the allele specific oligonucleotide actually hybridize over position 3949. It is noted that the recitation of "stringent conditions" does not provide structural limitation to the claimed sequences such that the description of SEQ IDNO: 1 represents a significant portion of the claimed genus of nucleic acids. A large number of different oligonucleotides with sequences unrelated to SEQ ID NO: 1 would be capable of hybridizing to SEQ ID NO: 1, even over position 3949, given the conditions recited in the specification. It is further noted that the recitation of "stringent conditions" in the specification are given by way of example and are not expressly defined to be limited to the conditions set forth in the specification.

The recitation of the wildtype sequence of SEQ ID NO: 1 as well as the 2 mutants taught in table 2, are not representative of the large genus of mutants, variants, and homologs, as well as completely unrelated sequences, of SEQ ID NO: 1 encompassed by the claimed recitation. Vas-Cath Inc. v. Mahurkar, 19 USPQ2d 1111, makes clear that "applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of the invention. The invention is, for purposes of the 'written description' inquiry, whatever is now claimed." (See page 1117.) The specification does not "clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed." (See Vas-Cath at page 1116.)

With the exception of SEQ ID NOS: 1, the complete complement of such, or exact fragments from within SEQ ID NO: 1 (for example, claim 29), the skilled artisan cannot envision the detailed chemical structure of the encompassed polynucleotides and/or proteins, regardless of the complexity or simplicity of the method of isolation. Adequate written description requires more than a mere statement that it is part of the invention and reference to a potential method for isolating it. The nucleic acid itself is required. See Fiers v. Revel, 25 USPQ2d 1601, 1606 (CAFC 1993), and Amgen Inc. V. Chugai Pharmaceutical Co. Ltd., 18 USPQ2d 1016. In Fiddes v. Baird, 30 USPQ2d 1481, 1483, claims directed to mammalian FGF's were found unpatentable due to lack of written description for the broad class. The specification provided only the bovine sequence.

Finally, University of California v. Eli Lilly and Co., 43 USPQ2d 1398, 1404, 1405 held that:

To fulfill the written description requirement, a patent specification must describe an invention and do so in sufficient detail that one skilled in the art can clearly conclude that "the inventor invented the claimed invention." Lockwood v. American Airlines, Inc., 107 F.3d 1565, 1572, 41 USPQ2d 1961, 1966 (1997); In re Gosteli, 872 F.2d 1008, 1012, 10 USPQ2d 1614, 1618 (Fed. Cir. 1989) (" [T]he description must clearly allow persons of ordinary skill in the art to recognize that [the inventor] invented what is claimed."). Thus, an applicant complies with the written description requirement "by describing the invention, with all its claimed limitations, not that which makes it obvious," and by using "such descriptive means as words, structures, figures, diagrams, formulas, etc., that set forth the claimed invention." Lockwood, 107 F.3d at 1572, 41 USPQ2d at 1966.

An adequate written description of a DNA, such as the cDNA of the recombinant plasmids and microorganisms of the '525 patent, "requires a precise definition, such as by structure, formula, chemical name, or physical properties," not a mere wish or plan for obtaining the claimed chemical invention. Fiers v. Revel, 984 F.2d 1164, 1171, 25 USPQ2d 1601, 1606 (Fed. Cir. 1993). Accordingly, "an adequate written description of a DNA requires more than a mere statement that it is part of the invention and reference to a potential method for isolating it; what is required is a description of the DNA itself." Id. at 1170, 25 USPQ2d at 1606.

Claim Rejections - 35 USC § 102

7. Claims 21-24 are rejected under 35 U.S.C. 102(b) as being anticipated by Kazuno et al (hereinafter referred to as Kazuno; Euro. J. Cancer; vol. 35, pp 502-506, 1999).

Kazuno teaches primers specific for thrombospondin 2 (SEQ ID NO: 1) which are capable of hybridizing to SEQ ID NO: 1 "at a region which encompasses nucleotide position 3949" wherein the nucleotide at position 3949 is a nucleotide other than thymidine (see page 503, col. 1, lines 6-8 of first full para). The recitation of "allele specific" and "probe" do not distinguish the claimed nucleic acids from the nucleic acids of Kazuno. It is noted that the amendment to the claim does not require that the probe hybridize to position 3949. Any region can encompass position 3949.

8. Claims 19, 21-25, 27, 29, 31, and 33 are rejected under 35 U.S.C. 102(b) as being anticipated by Genbank Accession number NM_003247.1, GI number 4507486; 19 March 1999, as evidenced by La Bell et al; Genomics, vol. 12, pages 421-429, 1992.

Accession number NM_003247.1 teaches the sequence of thrombospondin 2 which is identical to SEQ ID NO: 1 (alignment provided). Further, the accession number teaches that variations exist (see page 2), notably, a G instead of a T at position 3949. As noted by LaBell (cited in the Accession number disclosure), the sequence was contained a λgt11 clones from human dermal fibroblasts (claims 25, 27, 31, and 33). Therefore, the teachings of Accession number NM_003247.1 anticipates the instantly pending claims. The recitation of "primer" in

claim 24 provides no structural limitation to the claimed sequence and thus does not distinguish the claimed nucleic acid from the disclosure of Accession number NM_003247.1.

9. Claims 21, 23, and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Goodnow Jr. et al (hereinafter referred to as Goodnow; US Patent 5,780,607 July 14, 1998).

Goodnow teaches a sequence (SEQ ID NO: 6) which would be capable of hybridizing at a region which encompasses nucleotide position 3949 (and at position 3949) under stringent conditions, wherein position 3949 is a nucleotide other than thymidine (in this case, A). An alignment is provided.

Claim Rejections - 35 USC § 103

10. Claims 35-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kazuno in view of Southern (US Patent 5,700,637; 12/23/1997).

Kazuno teaches primers specific for thrombospondin 2 (SEQ ID NO: 1) which are capable of hybridizing to SEQ ID NO: 1 wherein the nucleotide at position 3949 is a nucleotide other than thymidine (see page 503, col. 1, lines 6-8 of first full para). The recitation of "allele specific" and "probe" do not distinguish the claimed nucleic acids from the nucleic acids of Kazuno. It is noted that the amendment to the claim does not require that the probe hybridize to position 3949. Any region can encompass position 3949.

Kazuno does not teach these sequences on an array, however, Southern teaches placing sequences on an array for the purposes of detecting target oligonucleotides (see abstract).

Therefore, it would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to provide the sequences of Kazuno on an array as taught by Southern for the obvious improvement of making detection of the thrombospondin 2 gene easier to perform.

11. Claim 35-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Genbank Accession number NM_003247.1, GI number 4507486 in view of Southern.

Accession number NM_003247.1 teaches the sequence of thrombospondin 2 which is identical to SEQ ID NO: 1 (alignment provided). Further, the accession number teaches that variations exist (see page 2), notably, a G instead of a T at position 3949. The accession number does not teach placing nucleic acid sequences on a microarray, however Southern teaches placing sequences on an array for the purposes of detecting target oligonucleotides (see abstract). Further, Southern teaches the method and array can be used to detect matched and mismatched oligonucleotides (see para bridging cols 9 and 10) and detect mutations or variation between sequences (col. 11). Therefore, it would have been prima facie obvious to one of ordinary skill in the art to construct oligonucleotides from Genbank Accession number NM_003247.1 with a G or a T at position corresponding to position 3949 of the accession number for the purpose of detecting the different alleles as taught by Southern, for the obvious improvement of making detection of the thrombospondin 2 gene alleles easier to perform..

12. Claims 35 and 37-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goodnow in view of Southern.

Goodnow teaches a sequence (SEQ ID NO: 6) which would be capable of hybridizing at a region which encompasses nucleotide position 3949 (and at position 3949) under stringent conditions, wherein position 3949 is a nucleotide other than thymidine (in this case, A). Goodnow teaches that such sequences can be useful as probes in diagnostic tests employing nucleic acid hybridization (see col. 4, lines 456-48). Goodnow does not teach placing such oligonucleotides on a microarray, however, Southern teaches placing sequences on an array for the purposes of detecting target oligonucleotides (see abstract). Therefore, it would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to provide the sequences of Goodnow on an array as taught by Southern, for the obvious improvement of making the nucleic acid hybridization method taught by Goodnow easier to perform.

Conclusion

13. Claims 26, 28, 32, and 34 are objected to for being dependent on rejected claims. No remaining pending claims are allowable over the cited prior art.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner Jehanne Sitton whose telephone number is (571) 272-0752. The examiner can normally be reached Monday-Thursday from 8:00 AM to 5:00 PM and on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Benzion, can be reached on (571) 272-0782. The fax phone number for this Group is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to (571) 272-0547.

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Jehanne Sitton
Primary Examiner
Art Unit 1634

Jehanne Sitton
9/24/04